

KELLER MEMORIAL BRIDGE
U.S. HIGHWAY 31 spanning the Tennessee River
Decatur
Morgan County
Alabama

HAER No. AL-139

HAER
ALA
52-DECA,
3-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Southeast Region
Department of the Interior
Atlanta, Georgia 30303

HISTORIC AMERICAN ENGINEERING RECORD

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Location: U.S. Highway 31 spanning the Tennessee River at Decatur, Morgan County into Limestone County, Alabama

U.S.G. S. 7.5 Minute Tanner and Decatur quadrangle, Universal Transverse
Mercator coordinates: 16.5031.3830600

Date of Construction: 1925-28. Altered: 1964 and 1987

Builder: Koss Construction Co., Des Moines, Iowa: reinforced concrete
Mt. Vernon Bridge Co., Mt. Vernon, Ohio: bascule

Altered by: Brooks and Mixon, Decatur, Alabama, 1964
Sue-Jac, Inc., Decatur, Alabama, 1987

Present Owner: State of Alabama Department of Transportation
1409 Coliseum Boulevard, Montgomery, Alabama 36130

Present Use: Vehicular bridge
To be demolished 1997

Significance: The Keller Bridge is the most elaborate of all Alabama's concrete bridges. It is one of only two bascule bridges in the state, and the only remaining one on the Tennessee River. It is named for the state's first Highway Commissioner who served between 1911 and 1925, and who was half-brother of Helen Keller. The bridge is eligible for the National Register of Historic Places.

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The Keller Memorial Bridge carries U.S. Highway 31 across the Tennessee River from Decatur in Morgan County into Limestone County to the northeast (Figure 1). It is located at milepoint 360.53 (UTM coordinates (coordinates : latitude 34D 36.8, longitude 086D 58.4). The bridge is owned and maintained by the Alabama Highway Department, and is eligible for the National Register of Historic Places.

William Simpson Keller

William Simpson Keller was Alabama's first Highway Engineer, and a half-brother of Helen Keller. He was born 0 February 20, 1874, in Tuscumbia, Alabama. His mother died very young, and Helen was born several years later after his father remarried. W.S. Keller attended undergraduate school at the State Normal College at Florence. In 1893 he graduated with a B.C.E. degree from the University of Alabama. He married Aileen Walton Moore of Columbia, Tennessee, who died in 1912. In 1913 he married Abbie Search, the daughter of Dr. James Searcy. He worked as an engineer in Alabama and Tennessee for several state and federal institutions prior to his appointment as state Highway Engineer of Alabama in 1911 (Owen 1921:959). He helped to organize the Highway Department in 1911, and was active as director until his death in Montgomery in 1925. He died on September 9 of a lingering illness, perhaps cancer. His residence in Montgomery was at 306 Felder Avenue, across from the Presbyterian Church where he was an elder. According to Helen Keller's niece, Mrs. Patty Johnson of Tuscumbia, the relationship between Helen and William Simpson was a close one, although correspondence between them has not been documented.

Keller was much esteemed during his life as a professional and as a warm and caring individual, and after his death for the contributions he made toward the development of North Alabama. He was elected as a member of the American Society of Civil Engineers on July 2, 1913. In 1939, his portrait was unveiled in the Highway Department Building, painted by Willie Gayle Martin of Shorter, Macon County, Alabama. His nickname was "Simp" (personal communication Michael Breedlove).

The text of the bronze commemorative plaque deserves quoting in full: "A native son in this Valley, First Chief Engineer of Alabama State Highway Department. One of America's pioneer road builders, a charter member and a president of The American Association of State Highway Officials, his personality, ability and character inspired to service, citizenship and manliness, and to him came the cooperation, honor and love of his associates. His vision and leadership laid the foundation for the highway system of Alabama, and this bridge is his realization of one of its most important links" (Photo 8).

Despite its official name, the bridge is not "memorial" in the sense that others of its generation are. Fifteen memorial bridges, the Houston, the Bankhead, and the Comer, among others, were financed by a state legislative act in 1927, which enabled construction funds to be repaid by means of a toll. Eventually the unpopular toll was eliminated. The fifteen memorial bridges were named to commemorate "eminent deceased Alabamians" (Owen 1930:200). Keller was honored likewise by having a bridge named for him, but the bridge itself is not part of the state's "memorial bridge" system (Jim Parker, personal communication, 1991).

Description of the Keller Bridge

The Keller Bridge stretches 2077' across the Tennessee River. It is an arch deck, open spandrel bridge with 18 approach spans. The main span, 212' is a movable bascule, or drawbridge, a nineteenth century design. The Keller Bridge is only one of two bascule bridges in the state (the other is Dog River near Mobile), and the only on the Tennessee River. Both are slated for demolition.

An early description of the design and structure of the bridge was given by State Highway Department Engineer H. H. Houk in a 1928 newspaper account on the day the bridge was inaugurated. The design is one of two

considered by the Highway Department; the alternative is not discussed. It is noted that the arch design cost an extra \$75,000, but the additional money was justified by the elegance of the design and the aesthetics of the structure in a lovely natural setting. However, money was not to be thrown away: "The details of the structure were proportioned and the grade of the roadway chosen with the idea of providing as graceful and distinctive a structure as possible without expenditure for excessive ornamentation" (Decatur Daily, 1928g). (Photos 3, 4, and 5)

Several companies were involved in construction. Koss Construction Co., Des Moines, Iowa, were contractors for the reinforced concrete portion of the bridge. Harrington, Howard and Ash of Kansas City, Missouri, were retained as consultants on the design of the movable span and machinery, while Mt. Vernon Bridge Co. of Mt. Vernon, Ohio, was contractor for that portion. McWhorter and Gilbert were contractors for the Swan Creek Bridge and north approach fill. The south approach trestle and roadway approach were the responsibility of J. B. Turner.

F. H. Gardner, Jr. was resident engineer in the early stages of construction with H. F. O'Cain as assistant. J.L. Land replaced Gardner as resident engineer, and carried the job to completion with J. B. Carter as assistant and B. L. Bray and J. A. Haislip as inspectors. R. E. Taylor inspected the fabrication of the steel and machinery at the factories. J. B. Trotter, assistant bridge engineer C. B. Moore, locating engineer, Paul Moller, P. L. Andrews and Merton Messer, designers, also participated in the design and construction work (Decatur Daily, 1928g).

The original bridge consisted of 12 two-ribbed open spandrel reinforce concrete arches. The navigational channel flows underneath the bascule. Piers were placed 103 feet apart at the Decatur end of the bridge, and 124 feet apart at the center. Two massive solid concrete and steel piers support the bascule. Horizontal clearance on the navigation channel is 206 feet.

The width of the bridge is 20 feet (curb to curb), and the deck width is 30 feet (out to out). The median is open, with sidewalk width just under 4 feet (right 3.7, left 3.8). The deck structure is cast-in-place concrete with a gravel protective surface (Photo 6).

The History of the Keller Bridge

The bridge was built in response to local demand for modern industrial development during the early part of the 1900s. In 1912, William S. Keller announced the commencement of construction of U.S. Highway 31. The community had to wait another fourteen years for the bridge to be built (Jenkins and Knox 1970:237). The near-by railroad bridge had been built in the late 1800s, but the Tennessee River would not give up its ferry service for vehicular traffic until the Keller Bridge was realized (Photo 7).

Private speculators attempted to gain a permit to build a bridge, which would turn a profit for them; but the State Highway Department stopped their negotiations, and authorized the construction of the Keller Bridge. Cost of the bridge over-ran the original estimate. State funds were supplemented by \$50,000 respectively from Decatur and Albany, to be repaid by the Highway Department. The debt was not settled for almost a decade. At that time the two towns had merged to become Decatur (Jenkins and Knox 1970:251). The local historians go on to explain how the money was finally repaid, "In 1935, T. C. Almon, who was also City Attorney at this time, was elected to the legislature. In 1936, he succeeded in having the legislature pass an act refunding the \$100,000 to Decatur. But he only succeeded in getting the money by a mandamus against the then Highway Director, Gaston Scott. But the money was repaid" (Jenkins and Knox 1970:251). The original cost was \$468,000, shared by Decatur and Albany, the counties of Morgan and Limestone, and the state highway commission.

Construction was begun on September 17, 1925. The ground-breaking ceremony opened with selections by the Boys' Industrial Band followed by speeches by T. H. Alexander, representative of the governor of Tennessee (Austin Peavy), Congressman Eslick of the Seventh Tennessee District, and Alabama Governor, William W. Brandon (Albany-Decatur Daily, 1925).

The massive construction job took almost three years to complete. By late 1927 the local newspaper began to carry reports on the progress of construction almost every day. Obtaining right of way along Sixth Street arose as a last minute complication. The Director of the state Highway Department, Judge Woolsey Finnel, declared that no date for opening the bridge could be set until the right of way was clear (The Decatur Daily, 1928a). The obstacle, the Gardner lot, had been deeded by Morgan Land Co. by John B. Weakley of Birmingham (The Decatur Daily, 1928b). Mr. Weakley apparently got word that he seemed to be holding up the inauguration date, and within a week had an open letter of explanation published in the newspaper. He had no intention of blocking the right of way, and would facilitate obtaining the Gardner lot by turning the property over to the state at its actual cost of \$5,000 (The Decatur Daily, 1928d). The way was clear to set the date of opening, and in days leading up to the event, only celebration plans were discussed in the newspaper.

As part of the preliminary plans, the Crescent Amusement Co. of Nashville was to send cameraman Dewey Mouson to take moving pictures of pedestrians on the bridge, which would then be shown at the Princess Theater (The Decatur Daily, 1928e). It is not reported if this event took place.

On Sunday, February 12, 1928, the bridge was opened to pedestrian traffic, and to general traffic by March 1. The newspaper went on to report that State Engineer H. H. Houk, "who has had much to do with the direction of the work," inspected the bridge prior to its opening (The Decatur Daily, 1928c).

The inauguration of the Keller Bridge

The bridge was inaugurated on Tuesday, March 6, 1928 with a day -long celebration, covered in detail by the The Decatur Daily. The following account is a compilation of information from various articles from the newspaper of that and the following day.

The celebration began early as hundreds of people poured into Decatur by car and train. Flags were flying and banners waved. Schools were closed an hour and a half prior to the one o'clock ceremony. A parade had been organized with Thomas A. Bowles as chairman of the committee, assisted by Boy Scouts and police officers. Participating bands, including the Birmingham Police band, and the Boys Industrial band, were served lunch at the high school cafeteria by the Central Parent-Teachers' Association. The anticipated huge crowd lunched at "the numerous temporary lunch stands which were operated by church and civic organizations", (The Decatur Daily, 1928f). The parade formed near the Y.M.C.A. and proceeded to the south end of the bridge.

It was the longest parade ever seen in Decatur, and possibly the largest crowd of spectators. Twenty thousand visitors and 10,000 residents witnessed hundreds of gaily-decorated floats and carts, interspersed with several bands. Someone counted 1,317 cars that crossed the bridge that day. Presumably drivers crossed back and forth after the ceremony was over.

The first four official cars in the parade carried the notables:

First car: James A. Nelson, mayor of Decatur, John Patterson, the legislator, W.W. Fussell, and W. R. Spight.

Second car: Gov. Bibb Graves, Judge Patterson, Fred J. Cramton, president of the Bee Line Highway, and Frank W. Barnett, writer from Birmingham.

Third car: Paul Moller, architect who designed the bridge, Judge and Mrs. Woolsey Finnell, and the Hon. W.C. Davis.

Fourth car: Sen. John Craft, "Father of Good Roads in Alabama", a representative of the mayor of Mobile, C.W. Sarver, mayor of Athens, Jesse Herrin, representative of the Mayor of Montgomery (W. A. Gunter, Jr.), and Sidney J. Reeves, Mayor of Anniston.

In spite of months of planning the minutest details, the longest parade in the history of Decatur was unceremoniously stopped in its tracks. "As the front ranks of the parade moved out upon the Keller Memorial Bridge there was an unexpected halt. The bascule span of the bridge rose into the air, even in the hour of Decatur's triumph did the commercial transportation system, of which Decatur is justly proud, continue in uninterrupted service. As the steel span was lowered, the parade moved on toward Limestone County soil, the first motor driven caravan to cross from Morgan to Limestone soil", (The Decatur Daily, 1928h).

The dedication ceremony seems to have included every important personage in the area. It was opened with a prayer by Dr. James Allen Smith, pastor of the Central Baptist Church. The Hon. John Patterson, master of ceremonies, was introduced by Judge A. G. Patterson. Welcoming speeches were given by the Hon. W.R. Spright of Decatur, the Hon. C.W. Sarver, Mayor of Athens on behalf of Limestone County, and Judge Patterson for Morgan County.

The bridge was formally delivered to the state of Alabama by the state Director of Highways, Judge Woolsey Finnell. The Hon. S. A. Lynne introduced Gov. Bibb Graves who accepted the bridge for public service. The Hon. Fred J. Cramton, president of the Bee Line Highway Association, read a short biography, and dedicated the bridge in the name of Keller. Mrs. Abbie Search Keller, his widow, unveiled the bronze tablets, commemorating "Keller the Man and Keller the Engineer", (Photo 8).

Festivities continued into the evening with a banquet for 300 at the Masonic temple, served by the Parent-Teachers Association. Speeches continued with Judge Patterson as toastmaster, the Hon. W. W. Fursell made the principal address, and five-minute addresses were delivered by "a number of visitors and home folks", (The Decatur Daily, 1928f). The day of celebration concluded with a subscription dance sponsored by the Junior Chamber of Commerce, music furnished by Nappi's Columbia Recording orchestra of Birmingham. The euphoria of the day's celebration is reflected in a front-page editorial, a period piece in itself, and is included in its entirety.

DECATUR WELCOMES YOU
(An editorial)

As the citizens of Decatur and North Alabama gather here today with mixed feelings of jubilation and humility, The Decatur Daily, on behalf of this community, extends to each and every visitor the sincerest welcome.

To us this is a day of days, a dream come true, and we are jubilant. We are not unmindful, however, that in presenting this bridge to public service, Alabama expects Decatur and North Alabama to continue to hold high the torch of progress. Jubilantly we view the completed job and humbly we accept the responsibility of the other.

The Decatur Daily believes whole-heartedly in Decatur and in North Alabama. The Tennessee River long has been for we people of the Tennessee Valley a source of civic inspiration and a barrier to civic realization.

On the majestic sweep of its bosom there is room for commerce to all parts of the world; as it flows toward the sea, its silent waters develop power sufficient to revolutionize Southern industry, if not the industry of the nation. At the same time its wide course long has been a barrier to free commerce between one section and another.

The completion and the dedication of the Keller Memorial Bridge here removes the barrier, overcomes the impediment to traffic and opens great new avenues of trade and travel.

Little by little also is coming the realization of the dreams of utilization of the Tennessee for power and for commerce. Even now plans are being studied for barge lines on the river and already the nation is familiar with Wilson Dam, one of the greatest single undertakings of its kind

in the world. BUT ONLY ONE OF A NUMBER OF POWER SITE DEVELOPMENTS PROJECTED ON THE TENNESSEE RIVER. The total contemplated water power development on the Tennessee River is nine times that of Niagara Falls and extends from Cove Creek, above Knoxville, to Riverton Dam, below the famed Muscle Shoals.

Is there any wonder that the people of Decatur and the people of North Alabama can scarcely restrain their enthusiasm when they speak in affectionate terms of the own God-hlessed section of this universe.

The opening of the Keller Memorial Bridge here has been characterized as the greatest achievement of the Bee Line Highway Association and who can say it is not so? From the Great Lakes to the Gulf of Mexico this short route from Chicago to Mobile cuts straight through the heart of the Middle West and the South.

Is there anyone, familiar with the speed with which cross-country travel has developed within the past decade, willing to hazard even a guess as to the future importance of this great highway? Can anyone forecast, within the limits of reasonable estimates, the traffic which this artery will be called upon to transport during the next 10 or 15 years?

Any attempt to measure the future importance of the Bee Line Highway is certain to lead unswervingly to the conclusion that the Keller Memorial Bridge is destined to play a leading role in the development of highway transportation not only of Decatur and North Alabama, hut of the entire South.

As The Daily stated before, such a day as this day, it brings joy that the dream we all have had has come true, but when we consider the future, it makes us humble in the contemplation of the greater day that is about to dawn.

The people of Decatur are glad of the opportunity they have had to welcome you to this ceremony, and they trust your visit may be enjoyable and profitable, but those of you who catch the real vision, who understand the real significance of this gathering today will join us, with bowed heads, in humble acknowledgement to Him who had done so much to enrich, from His vast storehouses of nature this imperial Tennessee Valley.

The Keller Bridge, 1964 to the present

The Keller Bridge served the community well from its inauguration until 1964 when major renovation was needed to lengthen the south approach by replacing 5 concrete and wood spans with concrete and steel. The work was carried out by Brooks and Mixon, a local construction company no longer in business. The cost of this work was \$579,815, according to the state Highway Department.

In 1961, the Tennessee River Bridge was built to relieve traffic of the two-lane Keller. The new bridge carries northbound traffic, leaving the southbound on the Keller.

In the late 1970s, the local newspaper began to recount a growing number of problems. In 1977, a barge collided with a pier, causing worries from the director of the County Civil Defense that cars idling on the bridge might be in danger if a pier were struck, causing the bridge to collapse. Apparently, several similar incidents of barges banging into the piers had chipped away concrete, but had not caused serious damage to the substructure.

In its fiftieth anniversary year, the Keller Memorial Bridge was recognized as obsolete, and in dire need of overhaul to its electrical system and gears. Navigational problems increased with the larger barges passing through

the difficult channel between the railroad bridge and the Keller. The railroad bridge's swing span, built in 1885, was replaced in 1978, with a lift span, a renovation thought to ease barge passage. However, the 350-foot horizontal clearance of the Keller was still too narrow for the larger channel traffic (the passage misaligned between the railroad bridge and the Keller) and accidents continued to occur.

Another problem, reported in 1981, concerned boaters not being able to get the attention of the Keller drawbridge attendants to raise the bridge for their tall masted sailboats. The attendants' room was placed so that it was difficult to see small craft, and impossible to hear their shouts. Occasionally sailboat masts were damaged when boaters attempted to pass under the closed bascule.

By 1983, word had gone out that the Keller was to be replaced when funds would become available. The Decatur Daily (1983) quoted the long-time bridge tender, Coy Clem, that the bridge was mechanically safe, but problems were caused by traffic jams when the spans had to be raised. A greater number of increasingly larger barges required the bridge spans to be raised approximately 300 times per month. Area residents lost time from work and school as vehicular traffic was stopped for 15-20 minutes with each opening. It was not a problem that would go away.

The traffic tie-up was the major reason the highway Department gave the Keller an extremely low official sufficiency rating of 4, on a scale of 0 to 100 (worst to best). The two main components of the sufficiency rating are "functionally obsolete" and "structurally deficient." The bridge was considered safe even though it was more than 50 years old at the time of the assessment. It was functionally obsolete because it was not designed for the heavier, larger vehicles and barges. The steady growth in vehicular traffic is seen in data from the State Highway Department: in 1982, 11,000 vehicles crossed each bridge daily; in 1985, the number had grown to 11,860. By 1988, the average daily traffic was 15,670 of which 7 percent was truck traffic.

The low sufficiency rating made the bridge eligible for replacement, but the state Highway Department had other projects higher on the priority list. Meanwhile solutions to the problem were sought. The mechanical apparatus for raising and lowering the spans continued to deteriorate, slowing the drawbridge, and causing further delays. A consulting firm, Diaz-Seckinger and Associates of Tampa Florida, was brought into assess the Keller's mechanical and electrical equipment.

Even more barge traffic was expected with the opening of the Tennessee-Tombigbee Waterway in 1985. A year prior to the opening, local voices of concern were again raised, and reported in The Decatur Daily (1984). It was estimated that the bridge would be opened 20 percent more often, once the Ten-Tom was in use. More frequent waits for the drawbridge worried area residents.

The Keller was closed for repairs on Monday, April 20, 1987. All traffic was shifted to the Tennessee River Bridge, which had been made two-way for the 90-day duration of reconstruction. Traffic congestion continued with the doubled number of vehicles.

The Decatur Daily (1987a) described the renovations. A local company, Sue-Jac, Inc., was awarded the \$1.04 million contract for renovations, including replacement of drive gears and electronic wiring, a new generator, and construction of a bridge-tender's house. Darrell Sims served as project manager.

New gears and wiring allowed the spans to be raised and lowered in seven minutes as opposed to the 40 minutes needed with the old and worn apparatus. A set of one 35-horsepower motor and 14 gears was placed underneath the base of each span. Gears range in size from size inches to four feet in diameter. Protective covers were used on the new gears to prevent weathering, and infrared heaters used in winter keep the gears from freezing.

Formally, electricity was carried through conduits in the Keller. The new system carries the current from near-by power poles, through conduits on the Tennessee River Bridge, and onto the Keller. The original "tractor engine" generator was replaced by a new General Electric 15,000 kilowatt generator which serves as a back-up to

the new electrical system. The new bridge tender's house, described as the "nerve center" was relocated, providing clear visibility of the bridge and water traffic. Bathroom facilities, previously lacking, were included as part of the amenities. Sue-Jac subcontracted North Alabama Glass Co., Goss Electric Co., and W & S Electrical and Air Conditioning Co., for work on the bridge tender's house.

Sue-Jac completed renovations approximately two weeks before the July 19 deadline set in the contract. A five-day trial period, supervised by the State Highway Department, revealed no flaws in the construction work.

Renovations of the bridge in 1987 appear to have alleviated the problem of traffic jams, but by 1989 another potentially dangerous situation arose with runaway barges hitting the piers. The newspaper reported several such incidents (The Decatur Daily 1990). The Keller Bridge was not involved in all the accidents, but its misalignment with the other bridges and its narrow passage make it a part of the overall problem. Chunks of concrete were broken from the Keller's pier, but no serious structural damage was done. The major threat came from the potential of spilling hazardous chemicals into the waterway from the barges. To date, barges carrying chemicals have not hit the piers, but the possibility remains a concern for the populace. Replacement of the Keller appears to be the only solution to unsnarl traffic jams and avoid barge collisions. Highway officials estimated the cost of demolishing the Keller at \$415,000 (The Decatur Daily , 26 August 1987b).

Summary and Recommendations

On a fine Spring day in 1928, jubilant crowds gathered to celebrate the opening of the Keller Bridge. Sixty-two years later, cheers have given way to curses as crowds jam the bridge in traffic snarls. The hoped-for progress and growth of North Alabama exceeded its promise. In 1928, the bridge heralded new prosperity for the area; now it is looked upon as an obstacle to industrial development.

The bridge has served its purpose, but it is hoped that some part of the structure might be saved. It has been suggested that the arches on the Decatur side of the river can be saved as a fishing pier and shopping arcade. It seems only fitting that this monument to the industry of North Alabama should be maintained.

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1925 "Speaking at Site of Bridge Brings about Love Feast," 18 September.

The Decatur Daily

1928a "No Confirmation on Bridge Finish: Finnell sticks to original stand on the opening," 21 January.

1928b "One Property Owner Only, Said Now to Block Bridge Approach," 31 January.

1928c "Bridge Opens Sunday for Pedestrians: traffic will use crossing on March 1st," 7 February.

1928d "Weakley Offers His Full Cooperation to the County to Obtain Right-of-Way," 8 February.

1928e "Department to Fix Celebration Date," 10 February.

1928f "Decatur and Guests Dedicate Bridge: great throng is in the city for ceremony, 6 March.

1928g "Story of Bridge Construction Is One of Romance," 6 March.

1928h "Parade Longest Ever Seen Here, Citizens Agreed," 7 March.

1983 "State Begins Work to Replace Bridge," 30 March.

1984 "Need There, but Keller Won't Be Replaced Soon," 27 May.

1987a "Keller Renovation Includes Electrical and Gear Systems," 17 May.

1987b "New Bridge East of Keller Gathers Support at Hearing," 26 August.

1989 "Barge Hits Keller, River Bridges, Closes Highway," 26 June.

1990 "A Direct Hit 'Could Knock Down Bridge': barges in swift currents, pose danger to northbound span," 29 March

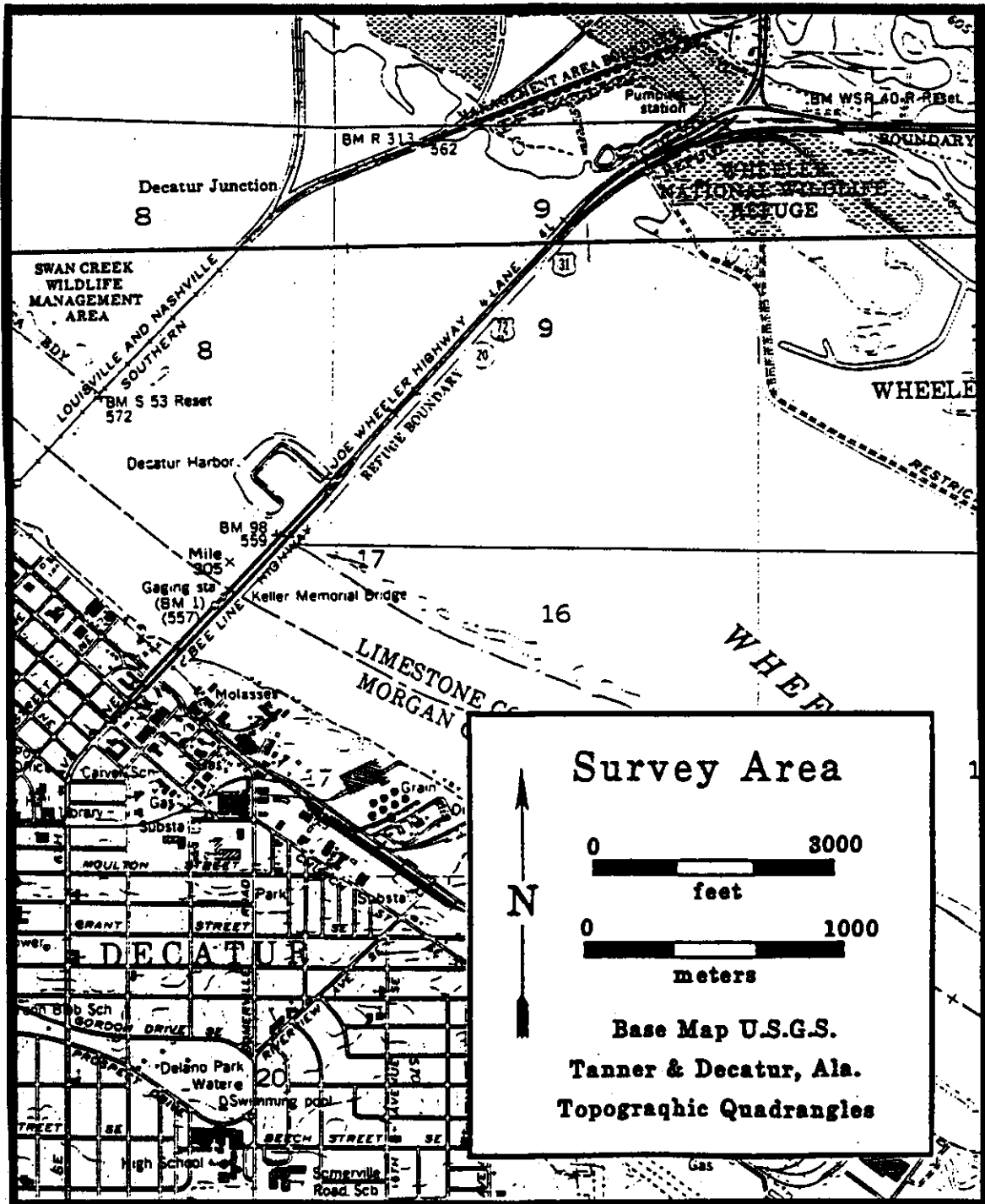


Figure 1. Area Map